

REMARKS

35 U.S.C. § 103 Claim Rejections

Claims 10, 12, and 14-17

By the Office Action dated February 19, 2009, the Examiner has rejected claim 10, 12, and 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Boguraev et al (U.S. Patent No. 6,185,592) (hereinafter “Boguraev”) in view of Chase (U.S. Patent No. 6,332,143) (hereinafter “Chase”). In order to form a proper obviousness rejection of a claim under 35 U.S.C. § 103(a), a collection of references together must teach or suggest each element of the claim, including the relationships between the elements. If any element is not fully taught by the combined references, the rejection cannot be sustained.

Evaluating Boguraev in view of Chase in this light, it is appropriate to examine the portions of Boguraev in view of Chase that the Examiner has pointed to as teaching the claimed elements of the rejected claims.

Claim 10

The Examiner asserted that

[r]e claim 10, Boguraev teaches a method for extracting opinions about a subject of interest from a text document having a plurality of sentences, the subject associated with a plurality of features (Col. 10 line 19 – Col. 11 line 26), the method comprising:
extracting from the document feature terms (Col. 5 lines 1-8) related to the features most relevant to the subject (Col. 10 line 19 – Col. 11 line 26);
for each sentence referring to a feature term (Col. 10 line 19 – Col. 11 line 26), determining whether the sentence includes an opinion polarity about the feature term; an
for each sentence referring to the subject (Col. 10 line 19 – Col. 11 line 26), determining whether the sentence includes an opinion polarity about the subject,
wherein the determining comprises
identifying opinion terms in the sentence using an opinion dictionary,
each entry in the dictionary having an opinion term, a part-of-speech tag,

and an associated opinion polarity,
for each sentence having a feature term and an opinion term, parsing the
sentence with an English parser to identify grammatical components in
the sentence and relationships between said components (Col. 10 line
5 19 – Col. 11 line 26), and
identifying an opinion polarity associated with said feature term using
the opinion dictionary

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10 (See Office Action, pages 15-16.)

The Examiner admitted that

Boguraev fails to teach
determining whether the sentence includes an opinion polarity about the
15 feature term
identifying opinion terms in the sentence using an opinion dictionary,
each entry in the dictionary having an opinion term, a part-of-speech tag,
and an associated opinion polarity
identifying an opinion polarity associated with said feature term using
20 the opinion dictionary

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(See Office Action, page 16.) The Examiner then asserted that

25 Chase teaches one denotative field is assigned to the word or phrase.
A second denotative field is assigned to the denotative context
(dictionary meaning) of the word or phrase. A third denotative field is
assigned to the part of speech. Preferably, each context of each word is
assigned a separate database record. Thus, if the dictionary definition of
30 a single word has two meanings among a total of five denotative
contexts, then there are five records, one for each context. There may be

multiple contexts for a given dictionary meaning when, for example, there are different parts of speech for the word/meaning. (Chase Col. 7 lines 23-43).

5 (See Office Action, pages 16-17.)

The Examiner next asserted that

Chase teaches connotative meanings for any given term are identified from a range of emotional descriptor terms. There are a plurality of predefined categories of emotional descriptors. In one embodiment described below for the English language there are 8 categories. In the preferred embodiment there are four categories of positive emotions (e.g., affection/friendliness, enjoyment/elation, amusement/excitement and contentment/gratitude) and four categories of negative emotions (e.g., sadness/grief, anger/loathing, fear/uneasiness, and humiliation/shame). Within each category there are a predefined list of emotional descriptors. A term may have a connotative meaning in any or all of the emotional categories. Some terms may not have any connotative meaning. In some embodiments only one emotional descriptor is permitted to be assigned for a given emotional category for a given term. Thus, for an eight category embodiment, any term can have 0 to 8 emotional descriptors—the emotional descriptors being from different emotional categories. In other embodiments a primary and a secondary emotional descriptor may be assigned for any given term. For such an embodiment, which is based on 8 emotional categories, any term can have 0-16 emotional descriptors—the emotional descriptors being in pairs, where the two emotional descriptors in a given pair being for a given emotional category. Different pairs include emotional descriptors for different emotional categories (Chase Col. 41 lines 9-36 & Fig. 4-7).

(See Office Action, page 17.)

The Examiner then asserted that “Chase teaches word relationship with one another, wherein one term will describe another term (i.e. lonely people) within the context of the emotion of a document (Fig. 6 and 7).” (See Office Action, page 18.)

5 The Examiner finally asserted that

[t]herefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Boguraev to incorporate determining whether the sentence includes an opinion polarity about the feature term, identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion polarity, identifying an opinion polarity associated with said feature term using the opinion dictionary as taught by Chase to allow for various fields within a dictionary (i.e. meaning, context, parts of speech) (Chase Col. 7 lines 23-34), wherein stored emotional content is defined as 0 to n emotional connotations per record (or per term in the passage) whereby emotional connotations stored for each term in the database are associated with either a positive emotional category or a negative emotional category and displayed graphically (Chase Col. 11 line 45 – Col. 12 line 16 and Fig. 5-7).

(See Office Action, page 18.)

To the extent the Examiner's language at pages 15-18 of the Office Action can be understood, it appears that the Examiner has asserted the following correspondence between Boguraev and Chase and claim 10:

Claim 10	<u>Boguraev</u>	<u>Chase</u>
10. A method for extracting <i>opinions</i> about a subject of interest from a text document having a plurality of sentences, the	<u>Boguraev</u> does not teach this claim element.	<u>Chase</u> does not teach this claim element.

<p>subject associated with a plurality of features, the method comprising:</p> <p>extracting from the document feature terms related to the features most relevant to the subject;</p> <p>for each sentence referring to a feature term, determining whether the sentence includes an <i>opinion</i> polarity about the feature term; and</p> <p>for each sentence referring to the subject, determining whether the sentence includes an <i>opinion</i> polarity about the subject,</p> <p>wherein the determining comprises</p> <p>identifying <i>opinion</i> terms in the sentence using an <i>opinion</i> dictionary, each entry in the dictionary having an <i>opinion</i> term, a part-of-speech tag, and an associated</p>	<p>-</p> <p><u>Boguraev</u> does not teach this claim element.</p> <p><u>Boguraev</u> does not teach this claim feature.</p> <p><u>Boguraev</u> does not teach this claim feature.</p>	<p><u>Chase</u> does not teach this claim element.</p> <p><u>Chase</u> does not teach this claim element.</p> <p><u>Chase</u> does not teach this claim element.</p> <p><u>Chase</u> does not teach this claim feature.</p>
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<p><i>opinion</i> polarity,</p> <p>for each</p> <p>sentence having a feature term and an <i>opinion</i> term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components, and</p> <p>identifying</p> <p>an <i>opinion</i> polarity associated with said feature term using the <i>opinion</i> dictionary,</p> <p>wherein</p> <p>the</p> <p>grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases, each feature term may have a modifier describing the feature term, and</p> <p>the</p> <p>identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the <i>opinion</i></p>	<p><u>Boguraev</u> does not teach this claim feature.</p> <p><u>Boguraev</u> does not teach this claim feature.</p> <p><u>Boguraev</u> does not teach this claim feature.</p> <p><u>Boguraev</u> does not teach this claim feature.</p>	<p><u>Chase</u> does not teach this claim feature.</p> <p><u>Chase</u> does not teach this claim feature.</p> <p><u>Chase</u> does not teach this claim feature.</p> <p><u>Chase</u> does not teach this claim feature.</p>
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<i>dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary.</i>		
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In reviewing the cited portions of Boguraev and Chase, however, it becomes apparent that Boguraev and Chase have been generalized, and, in fact, do not support the position asserted by the Examiner.

5 **for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term**

In particular, Boguraev and Chase, alone or in combination, fail to teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach determining whether the sentence includes an opinion polarity about the feature term”. (See Office Action, page 6.) In addition, Boguraev does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”. Chase also does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Chase cannot teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”.

for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject

In particular, Boguraev and Chase, alone or in combination, fail to teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an

opinion polarity about the subject”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach determining whether the sentence includes an *opinion* polarity about the feature term”. (See Office Action, page 6.) In addition, Boguraev does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”. Chase also does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Chase cannot teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”.

identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity

Further, Boguraev and Chase, alone or in combination, fail to teach or suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach . . . identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion polarity”. (See Office Action, page 6.) In addition, Boguraev does not disclose or mention “*opinion* terms”, “*opinion* dictionary”, “*opinion* term”, “*opinion* polarity”, or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”. Chase also does not disclose or mention “*opinion* terms”, “*opinion* dictionary”, “*opinion* term”, “*opinion* polarity”, or “*opinion*” at all. Thus, Chase cannot teach or suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “identifying *opinion* terms in

the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”.

**for each sentence having a feature term and an *opinion* term,
parsing the sentence with an English parser to identify grammatical
components in the sentence and relationships between said components**

In addition, Boguraev and Chase, alone or in combination, fail to teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components,” as required by claim 10. Boguraev does not disclose or mention “*opinion* term”. Thus, Boguraev cannot teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”. Chase also does not disclose or mention “*opinion* term”. Thus, Chase cannot teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”.

**identifying an *opinion* polarity associated with said feature term
using the *opinion* dictionary**

In addition, Boguraev and Chase, alone or in combination, fail to teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary,” as required by claim 10. The Examiner admitted that “Boguraev fails to teach a dictionary or similar table having an opinion term and an associated polarity.” (See Office Action, page 4.) In addition, Boguraev does not disclose or mention “*opinion* dictionary”, “*opinion* polarity”, or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”. In addition, Chase does not disclose or mention “*opinion* dictionary”, “*opinion* polarity”, or “*opinion*” at all. Thus, Chase cannot teach or suggest “identifying

an *opinion* polarity associated with said feature term using the *opinion* dictionary”.

Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”.

5 **wherein the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases, each feature term may have a modifier describing the feature term**

10 In addition, Boguraev and Chase, alone or in combination, fail to teach or suggest “wherein the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases, each feature term may have a modifier describing the feature term,” as required by claim 10. Boguraev does not disclose or mention that “the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases”. (See Boguraev, col. 7, lines 3-6 and col. 9, lines 6-15.) Thus, Boguraev cannot teach or suggest “wherein the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases”. In addition, Boguraev does not disclose or mention “wherein . . . each feature term may have a modifier describing the feature term”. In fact, Boguraev does not disclose or mention “modifier” at all. Thus, Boguraev cannot teach or suggest “wherein . . . each feature term may have a modifier describing the feature term”. In addition, Chase does not disclose or mention that “the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases”. (See Chase, col. 3, lines 20-23.) Thus, Chase cannot teach or suggest “wherein the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases”. In addition, Chase does not disclose or mention “wherein . . . each feature term may have a modifier describing the feature term”. In fact, Chase does not disclose or mention “feature” or “modifier” at all. Thus, Chase cannot teach or suggest “wherein . . . each feature term may have a modifier describing the feature term”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “wherein the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases, each feature term may have a modifier describing the feature term”.

wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary

5 In addition, Boguraev and Chase, alone or in combination, fail to teach or suggest “wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary,” as required by claim 10. Boguraev does not
10 disclose or mention that “wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary”. (See Boguraev,
15 col. 7, lines 3-6 and col. 9, lines 6-15.) In fact, Boguraev does not disclose or mention “modifier” at all. Thus, Boguraev cannot teach or suggest “wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion
20 dictionary”.

In addition, Chase does not disclose or mention that “wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion
25 dictionary”. (See Chase, col. 12, lines 17-36.). In fact, Chase does not disclose or mention “feature” or “modifier” at all. Thus, Chase cannot teach or suggest “assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary”. Thus, Chase cannot teach or suggest “wherein . . . the identifying includes for each sentence having a verb phrase where the
30 verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier

being defined in the opinion dictionary”. Therefore, Boguraev and Chase, alone or in combination, cannot teach or suggest the claim 10 element of “*wherein . . . the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature*”
5 *term to the feature term, the opinion polarity of the modifier being defined in the opinion dictionary*”. It is therefore clear that Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 10 and, therefore, a rejection of claim 10 under 35 U.S.C. § 103(a) would be inappropriate.

Claim 12

10 Since dependent claim 12 depends on claim 10 and since Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 10, Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 12, and, therefore, a rejection of claim 12 under 35 U.S.C. § 103(a) is inappropriate.

Claims 14 and 15

15 Since dependent claims 14 and 15 depend on dependent claim 12 and since Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 12, Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 14 or claim 15, and, therefore, a rejection of claim 14 or claim 15 under 35 U.S.C. § 103(a) is inappropriate.

20 **Claims 16 and 17**

Since dependent claims 16 and 17 depend on dependent claim 15 and since Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 15, Boguraev and Chase, alone or in combination, cannot teach or suggest each element of claim 16 or claim 17, and, therefore, a rejection of claim 16 or claim 17 under
25 35 U.S.C. § 103(a) is inappropriate.

Conclusion

It is therefore clear that the drawings and claims 10, 12, and 14-17 comply with the requirements of 37 CFR and 35 U.S.C. §§ 101, 102, 103, and 112. The application is therefore in condition for allowance. Early notification to that effect is respectfully
30 solicited.

In the event that any issue remains unresolved, the Examiner is invited to telephone the undersigned at 408-927-3377.

Respectfully Submitted,

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Date: September 30, 2009

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